L 08456-67 EWT(m) DS/RM
ACC NR: AP6030900 (A,N) SOURCE CODE: UR/0080/66/039/008/1754/1760

AUTHOR: Trostyanskaya, Ye. B.; Makarova, S. B.

ORG: All-Union Scientific Research Institute of Chemical Reagents and High-Purity Substances (Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv)

TITLE: Anion exchangers belonging to the class of onium compounds 28 B

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 8, 1966, 1754-1760

TOPIC TAGS: anion exchange resin, ammonium compound, organic sulfur compound, organic phosphorus compound

ABSTRACT: In order to determine the influence of the structure of macromolecules of anion exchangers on their ion-exchanging properties, in synthesizing the exchangers use was made of styrene-divinylbenzene (SD) and styrene-bivinyl (SB) copolymers containing various amounts of the bridge-forming component in the copolymr. The copolymers were chloromethylated, then the chlorine atom was replaced by amine, phosphines or sulfides, producing ammonium, phosphonium and sulfonium compounds. Potentiometric titration curves of the polymeric ammonium compounds studied were recorded, and from them the apparent dissociation constants were determined. The ammonium compounds have the structure of bases whose degrees of dissociation are determined by the structure of the radicals attached to the quaternary nitrogen atom. The sulfonium and phospho-

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L 08456-67

ACC NR: AP6030900

nium compounds readily decompose in alkaline solutions. The thermal stability of anion exchangers in the salt form decreases in the order ammonium > phosphonium > sulfonium compounds. The degree of swelling of the exchangers is determined by the structure of the bridge-forming component, and the rate of the ion exchange reaction in salt solutions is determined by the macromolecular structure of the anion exchanger. Orig. art. has: 3 figures and 3 tables.

SUB CODE: 07/ SUBM DATE: 20Jul64/ ORIG REF: 005/ OTH REF: 007

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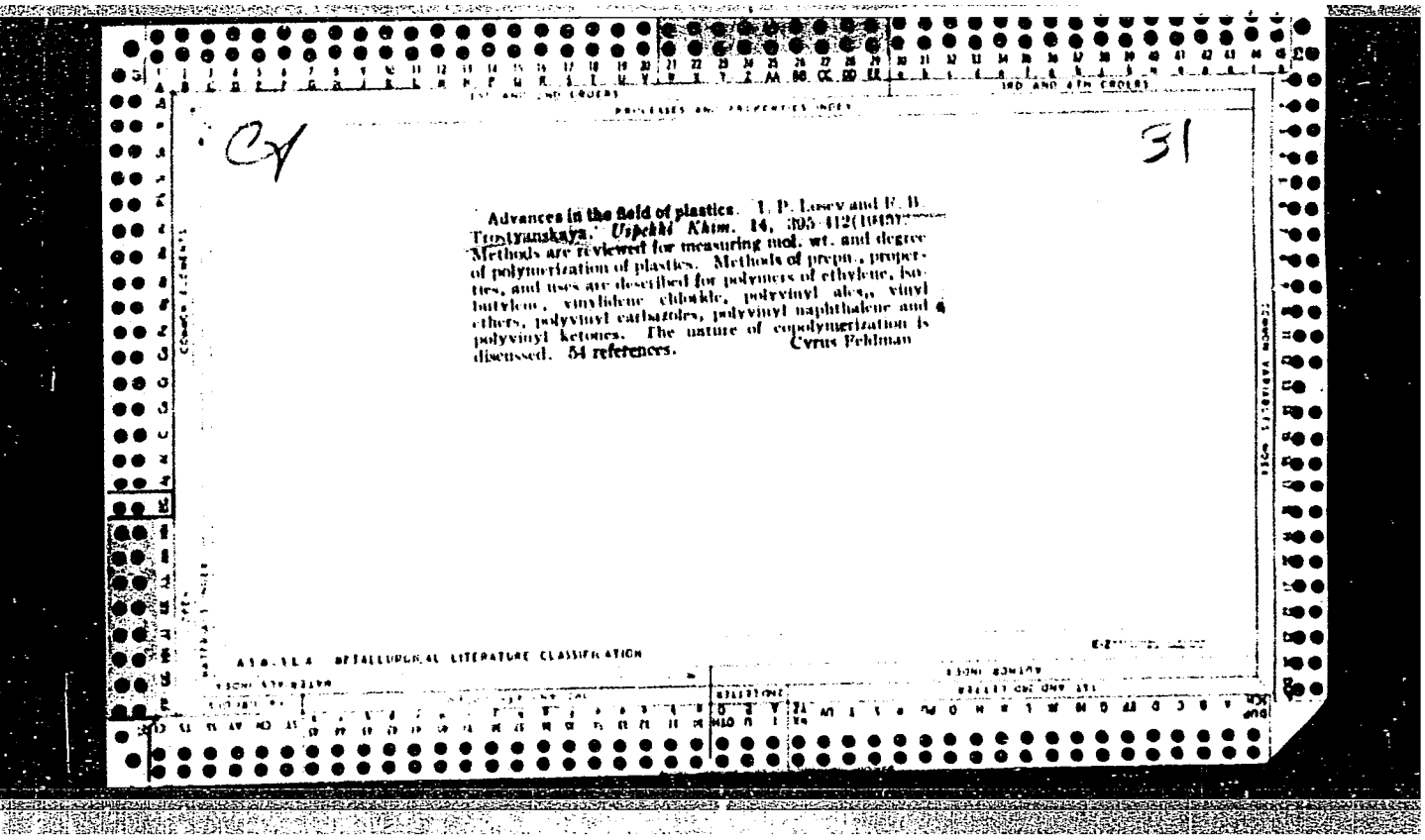

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31

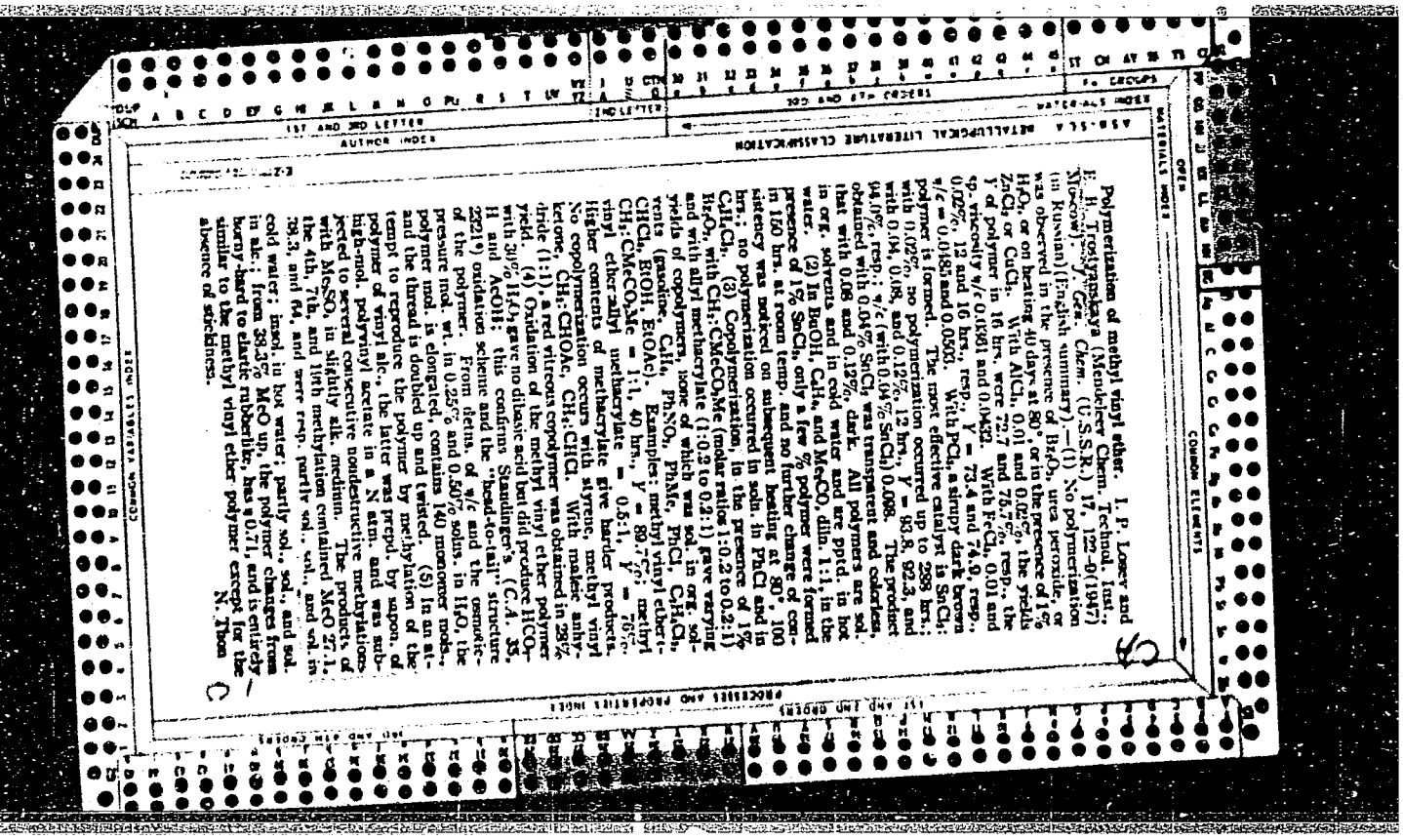
Advances in the field of plastics. I. P. Lasev and E. B. Trostyanskaya. *Uspekhi Khim.* 14, 395-412(1945). Methods are reviewed for measuring mol. wt. and degree of polymerization of plastics. Methods of prepn., properties, and uses are described for polymers of ethylene, isobutylene, vinylidene chloride, polyvinyl alcs., vinyl ethers, polyvinyl carbazoles, polyvinyl naphthalene and polyvinyl ketones. The nature of copolymerization is discussed. 54 references. Cyrus Feldman

A.S.T.I.A. METALLURGICAL LITERATURE CLASSIFICATION

TROSTYANSKAYA, E. B., FEDOTOVA, O. Ya. and LOSEV, I. P.

"Polymerization of Aryl Vinyl Ethers," J. Gen. Chem. (USSR), No.15, pp. 353-57, 1945

Moscow Chem. Inst. im Mendeleyev



Polymerization of methyl vinyl ether. I. P. Lossev and E. H. Troitzkaya (Mendeleev Chem. Technol. Inst., Moscow). *J. Gen. Chem.* (U.S.S.R.) 17, 122-9 (1947). In Russian) (English summary).—(1) No polymerization was observed in the presence of H_2O_2, urea peroxide, or BzO_2, or on heating 40 days at 80°, or in the presence of 1% H_2O_2, or on heating 40 days at 80°, or in the presence of 1% $ZnCl_2$ or $CuCl_2$. With $AlCl_3$, 0.01 and 0.02%, resp., the γ of polymer in 16 hrs. were 72.7 and 76.5%, resp.; the sp. viscosity w/c 0.0361 and 0.0432. With $FeCl_3$, 0.01 and 0.02%, 12 and 16 hrs., resp., γ = 73.4 and 74.9, resp., w/c = 0.0185 and 0.0503. With PCl_5, a stringy dark brown polymer is formed. The most effective catalyst is $SnCl_4$ with 0.02%; no polymerization occurred up to 288 hrs.; with 0.04, 0.08, and 0.12%, 12 hrs., γ = 93.8, 92.3, and 94.0%, resp.; w/c (with 0.04% $SnCl_4$) 0.098. The product obtained with 0.04% $SnCl_4$ was transparent and colorless that with 0.08 and 0.12% dark. All polymers are sol. in org. solvents and in cold water and are ppd. in hot water. (2) In BuOH, $CHCl_3$, and MeCO, dil. 1:1, in the presence of 1% $SnCl_4$, only a few % polymer were formed in 150 hrs. at room temp. and no further change of consistency was noticed on subsequent heating at 80°. 100 hrs.; no polymerization occurred in soln. in PhCl and in CH_2Cl_2. (3) Copolymerization, in the presence of 1% BzO_2, with $CH_2:CMeCO_2Me$ (molar ratios 1:0.2 to 0.2:1) and with allyl methacrylate (1:0.2 to 0.2:1) gave varying yields of copolymers, none of which was sol. in org. solvents (gasoline, $CHCl_3$, PhMe, PhCl, CH_2Cl_2, $CHCl_2CHCl_2$, EtOH, EtOAc). Examples: methyl vinyl ether-$CH_2:CMeCO_2Me$ = 1:1, 40 hrs., γ = 89.7%; methyl $CH_2:CMeCO_2Me$ = 0.5:1, γ = 76%. Higher contents of methacrylate give harder products. No copolymerization occurs with styrene, methyl vinyl ketone, $CH_2:CHOAc$, $CH_2:CHCl$. With maleic anhydride (1:1), a red viscous copolymer was obtained in 28% yield. (4) Oxidation of the methyl vinyl ether polymer with 30% H_2O_2 gave no dibasic acid but did produce HCO_2H and AcOH; this confirms Staudinger's (C.A. 25, 2221) oxidation scheme and the "head-to-tail" structure of the polymer. From detns. of w/c and the osmotic pressure mol. wt. in 0.25% and 0.50% solns. in H_2O, the polymer mol. is elongated, contains 140 monomer mols., and the thread is doubled up and twisted. (5) In an attempt to reproduce the polymer by methylation of the polymer of vinyl alc., the latter was prepd. by saponification of the polymer. polyvinyl acetate in a N atm. and was subjected to several consecutive nondestructive methylations with Me_2SO_4 in slightly alk. medium. The products of the 4th, 7th, and 11th methylation contained MeO 27.1, 29.3, and 44, and were resp. partly sol., sol., and sol. cold water; insol. in hot water; partly sol., sol., and sol. in alc.; from 38.5% MeO up, the polymer changes from horny-hard to elastic rubberlike, has a 0.71, and is entirely similar to the methyl vinyl ether polymer except for the absence of stickiness.

N. Thon

TROSTYANSKAYA, YE. B.

Losev, I.P. and Trostyanskaya, Ye. B. "Allylization of cellulose," in symposium: Issledovaniya v oblasti tsellyulozy i yeye sputnikov, Moscow-Leningrad, 1948, p. 133-37

SO: U-2888, Letopis Zhurnal'nykh Statey, No. 1, 1949

TROSTYANSKAVA, E. B.

Chemical Abstracts
Vol. 48 No. 5
Mar. 10, 1954
General and Physical Chemistry

Cation-exchanging resin sorbents. I. P. Losev, E. B. Trostyanskaya, and A. S. Tevlina. *Issledovaniya v Oblasti Khromatog., Trudy Vsesoyuz. Soveshchaniya Khromatog., Akad. Nauk S.S.R., Otdel. Khim. Nauk* 1950, 103-6 (Pub. 1952).—A brief review of the sulfonic acid resins useful as ion exchange agents. 2 references. G. M. K.

TROSTYANSKAYA, E. B.

Chemical Abstracts
Vol. 48. No. 5
Mar. 10, 1954
General and Physical Chemistry

Catalytic action of insoluble high-molecular-weight acids (cationites). I. P. Losev and E. B. Trostyanskaya. *Issledovaniya v Oblasti Khromatog., Trudy Vsesoyuz. Soveshchaniya Khromatog., Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1950, 188-91(Pub. 1952).—The azeotropic esterification (in C_6H_6 medium) reaction of BuOH-AcOH system is not catalyzed by polymeric carboxylic acids, whereas polymeric sulfonic and phosphoric acids are effective catalysts; the latter are less effective than the former. Usually, 5% addn. of a polysulfonic acid resin gave reproducible and rapid esterification; 0.25-0.5% concn. gave variable results. The reaction is less rapid, however, than one catalyzed by H_2SO_4. Results with various Soviet-trade-marked polymeric acids are given in tabular form. G. M. Kosolapoff

DUBININ, M.M., akademik, otvetstvennyy redaktor; GAPON, Ye.N.; GAPON, T.B.; ZHYPAKHINA, Ye.S.; RACHINSKIY, V.V.; BELEN'KAYA, I.M.; SHUVAEVA, G.M.; ROGINSKIY, S.Z.; YANOVSKIY, N.I.; FUKS, N.A.; KISELEV, A.V.; NEYMARK, I.Ye.; SLINYAKOVA, I.B.; KHATSET, F.I.; LOSEV, I.P.; TROSTYANSKAYA, Ye.B.; TEVLINA, A.S.; DAVANKOV, A.B.; SALDADZE, K.M.; BRUMBERG, Ye.M.; ZHIDKOVA, Z.V.; VEDENEEVA, N.Ye.; NAPOL'SKIY, S.A.; MIKHAYLOVA, Ye.A.; KAZANSKIY, B.A.; RYABCHIKOV, D.I.; SHEMYAKIN, F.M.; KRETOVICH, V.L.; BUNDEL', A.A.; SAVINOV, B.G.; VENDT, V.P.; EPSHTEYN, Ya.A.

[Research in the field of chromatography transactions of the All-Union Conference on Chromatography, November 21-24, 1950] Issledovaniia v oblasti khromatografii; trudy Vsesoiuznogo soveshchaniia po khromatografii, 21-24 noiabria 1950 g. Moskva, Izd-vo Akademii nauk SSSR, 1952. 225 p.
(MLRA 6:5)

1. Akademiya nauk SSSR. Otdelenie khimicheskikh nauk.
(Chromatographic analysis)

TROSTYANSKAYA, YE. B.

USSR/ Chemistry - Wood Hydrolysis Nov 52

"The Hydrolysis of Wood With Aniline Sulfate Solution," I. P. Losev, V. S. Kaminskiy, Ye. B. Trostyanskaya, Moscow Inst of Avn Technol

"Zhur Prik Khim" Vol 25, No 11, pp 1228-1231

The hydrolysis of wood in aniline sulfate solution proceeds with sufficient intensity. Part of the aniline combines with the nonhydrolyzed components of wood. The aniline that is combined, depending on the conditions of the reaction, may make up 75% of the weight of the lignin contained in the original wood.

PA 236T6

TROSTYANSKAYA, Ye. B., LOSEV, I. P. and TEVLINA, A. S.

"The Problem of the Structure of Phenol Sulfonic Acid-Formaldehyde Ion-Exchange Sorbents," an article included in the book "The Theory and Practice of the Application of Ion-Exchange Agents," edited by K. V. Chmutov and published by the AS USSR, 1955, 164 pp.

TROSTYANSKAYA, Ye.B.

Cation-exchanging synthetic resins. Trudy Kom.anal.khim. 6:215-234 '55. (MLRA 9:5)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva.

(Resins, Synthetic) (Cations)

AID P - 1372

Subject : USSR/Chemistry

Card 1/1 Pub. 119 - 5/6

Authors : Trostyanskaya, Ye. B., Losev, I. P., and Tevlina, A. S., (Moscow)

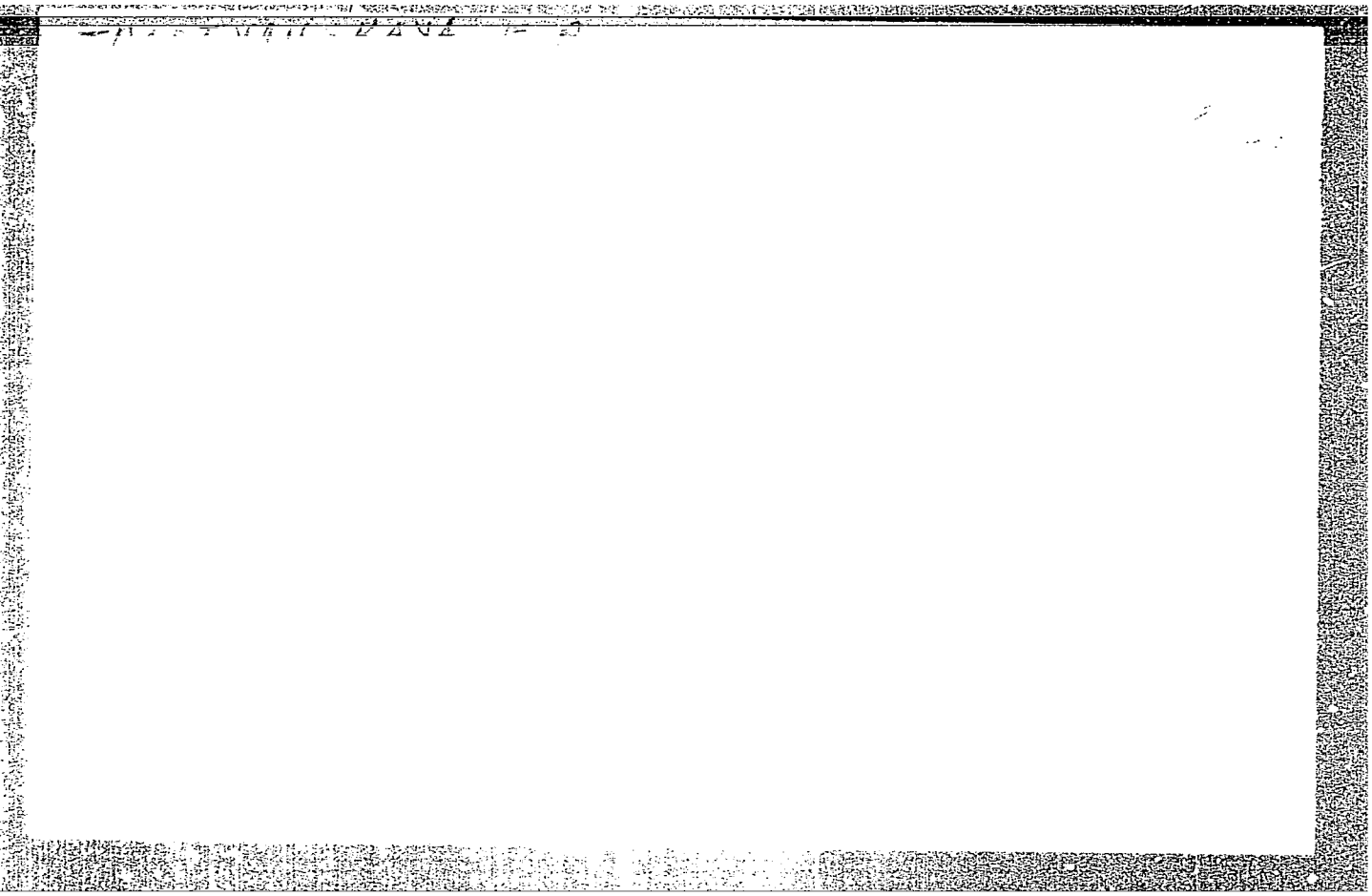
Title : Cation-exchange and electron-exchange resins

Periodical : Usp. khim., 23, no. 1, 69-92, 1955

Abstract : A review is given of the literature on cation- and electron-exchange resins and their preparation, with emphasis on work done by Russian chemists. Eight diagrams, 3 tables, 146 references (81 Russian: 1903-53).

Institution : None

Submitted : No date



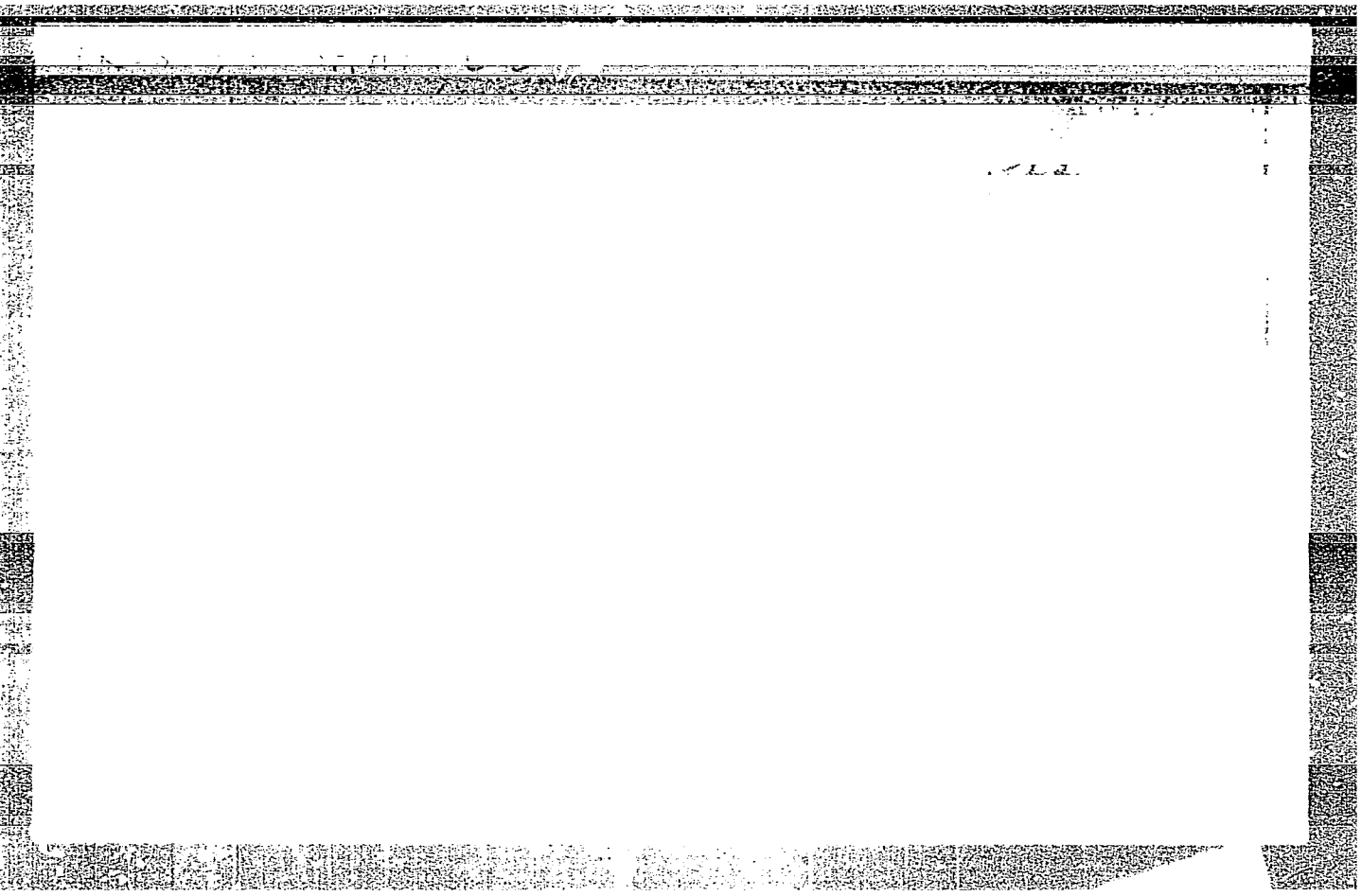
CHMUTOV, K.V., otvetstvennyy redaktor; SHEMYAKIN, F.M., professor, otvetstvennyy redaktor; DAVANKOV, A.B., redaktor; RACHINSKIY V.V., redaktor; SALDADZE, K.M, redaktor; SEMOV, P.L., professor, redaktor; TROSTYANSKAYA, Ye.B., professor, redaktor; YEGOROV, M.G., redaktor izdatel'stva; ASTAF'YEVA, G.A., tekhnicheskiy redaktor.

[Studies in ion-exchange chromatography; work of the conference on the application of ion-exchange chromatography in medical and food industry] Issledovaniia v oblasti ionoobmennoi khromotografii; trudy soveshchaniia po primeneniiu ionoobmennoi khromatografii v meditsinkoi i pishchevoi promyshlennosti. Moskva, 1957. 193 p. (MLRA 10:6)

1. Akademiya nauk SSSR. Komissiya po khromatografii. 2. Chlen-korrespondent Akademii nauk SSSR (for Chmutov)
(Ion exchange) (Chromatographic analysis)

TROSTYANSKAYA, Ye.B., doktor tekhn.nauk; PASHKOV, A.B.

High-molecular insoluble polyelectrolytes (ion-exchanging resins).
Khim.nauka i prom. 2 no.5:593-602 '57. (MIRA 10:12)
(Electrolytes) (Gums and resins) (Ion exchange)



APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001756730009-3"

32-9-5/43

TROSTYANSKAYA, Ye. B.

AUTHOR: Trostyanskaya, Ye. B., Tevlina, A. S.

TITLE: Selective Ion Exchange Sorbents for the Chromatographical Analysis (Selektivnyye ionoobmennyye sorbenty dlya khromatograficheskogo analiza)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 9, pp. 1042-1049 (USSR)

ABSTRACT: Out of the highly acid cations, which in the USSR are produced for the chromatographical analysis, the types SDB, KU-2, SBS have proved to be the best. They all are products of a sulphation of the polymerides of styrole with any "arching component". Out of the highly basic anionites the sorbent EDE-10P has to be mentioned. It is shown that the synthesis of the ionite-sorbents, to the structure or composition of which the selective sorption is predestined, is the better method of ion exchange chromatography. This method offers infinite possibilities for the ionite synthesis, which are converted into a set of reagents of confined speci al determination. The selectivity can be obtained by modifying th permeability of the ionite or by choice of type and mutual posit ion of the ions generating groups. The "ionite filters" for se paration of the organic ions from the inorganic ones or for di viding organic ions, which differ by the height of their mole weight have been applied more than all. Even more possibiliti for producing selective ionites offers the synthesis of inso

[illegible] of the ion- [illegible] macro-molecular [illegible] separation of the [illegible] contained in the so- [illegible] careful choice of the fil- [illegible] structure of [illegible] composition [illegible] by [illegible] in it. There are 4 tables [illegible] are Slavic.

ASSOCIATION: [illegible] (Mendeleyev Technological Institute imeni D.I.Mendeleyev khimiko-tekhnologicheskiy institut im.D.I.Mendeleyeva)

AVAILABLE: Library of Congress

Card 1/2

Card 2/2

Methods of Making High-Precision Castings 989

COVERAGE: The authors of the articles in this book have attempted to elucidate various aspects of precision casting by several methods, such as casting by the lost-wax process, in gypsum cement molds, in shell molds, and in silicate-bonded molds. The following topics are discussed: mechanical properties of structural and special-purpose steels of various types during the filling of hot molds made by the lost-wax process; investigation and practical application of various materials (low-melting compositions, refractory coatings, binders, different types of gypsum for casting of nonferrous metals); techniques of making intricate shell-mold cores; etc. This collection of articles is based on materials presented at a conference on the exchange of experience in the production of precision casting, held in 1956 at the Moskovskiy dom nauchno-tekhnicheskoy propagandy im. F.E. Dzerzhinskogo (Moscow Office of Scientific and Technical Propaganda im. F.E. Dzerzhinskiy).

Ozerov, V.A., Candidate of Technical Sciences. Pattern Compositions

Card 2/5

AVAILABLE: Library of Congress

Card 5/5

GO/sfm
1-5-59

TROSTYANSKAYA, Ye. B.

PHASE I BOOK EXPLOITATION 680

Gol'dberg, Mikhail Markovich, Zakharov, Vasiliy Aleksandrovich, Kazanskiy, Yuriy Nikolayevich, Leont'yeva, Valentina Petrovna, Losev, Ivan Platonovich, Trostyanskaya, Yelena Borisovna, Khazanov, Grigoriy Mikhaylovich, Chebotarevskiy, Vladimir Vladimimirovich, and Sheydeman, Igor' Yur'yevich

Nemetallicheskiye materialy i ikh primeneniye v aviastroyenii (Nonmetallic Materials and Their Use in Aircraft Construction) Moscow, Oborongiz, 1958. 428 p. 15,000 copies printed.

Eds.: Losev, I.P. and Trostyanskaya, Ye. B.; Reviewere: Bondarev, V.S., Engineer; Scientific Ed.: Panshin, B.I., Candidate of Technical Sciences; Ed. of Publishing House: Tubyanskaya, F.G.; Tech. Ed.: Rozhin, V.P.; Managing Ed.: Sokolov, A.I., Engineer.

PURPOSE: This is a textbook for students at advanced aeronautical engineering schools and may also be useful for engineers and technicians in industry and at scientific-research institutes who are interested in nonmetallic materials.

Card 1/23

Nonmetallic Materials and Their Use (Cont.) 680

COVERAGE: The book describes the characteristics and properties of nonmetallic materials and the technology used in their production and also the shop processes by which they are fabricated into structural members, assemblies, and aggregates. The information given in the book covers the entire range of nonmetallic materials used in aircraft construction, namely: plastics, rubber, paper, wood and textiles, glue, lacquer, paints, and coatings. The authors made use of the results of a pedagogic experiment of many years standing, i.e., the lecture course "Technology of Nonmetallic Materials" given at MATI (Moscow Aviation Technology Institute) and MAI (Moscow Aviation Institute). The book was compiled by workers in the department "Technology of Treatment of Nonmetallic Materials" at the MATI and of the department "Engineering Materials" at MAI under the general direction of the editors, I.P. Losev, Professor, Doctor of Chemical Sciences, and Ye. B. Trostyanskaya, Professor, Doctor of Technical Sciences. The authors of the first and second chapters are Ye. B. Trostyanskaya and I.P. Losev; of

Card 2/23

the third chapter, Ye. B. Trostyanskaya and G.M. Khazanov; of the fourth chapter, V.P. Leont'yeva; of the fifth chapter, V.A. Zakharov; of the sixth and seventh chapters, Yu. N. Kazanskiy; of the eigth chapter, I.Yu. Sheydeman; of the ninth chapter, Ye. B. Trostyanskaya, and those of the tenth chapter, M.M. Gol'dberg and V.V. Chebotarevskiy. The section of the seventh chapter "Mechanizing production methods used in molding objects from plastics" was written by G.I. Shapiro, and the section of the ninth chapter "Mechanical reinforcement of articles made of nonmetallic materials" by V.P. Leont'yeva; the author of paragraph 5 in that section was I.Yu. Sheydeman. The authors thank Ya. D. Avrasin, V.S. Bondarev, and M. Ya. Sharov for valuable advice and B.I. Panshin, Candidate of Technical Sciences, for his assistance in readying the manuscript for publication. The book contains 180 figures and 30 tables. There are 50 references, of which 48 are Soviet and 2 English.

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SOV/74-27-9-3/5

AUTHORS: Trostyanskaya, Ye. B., Losev, I. P., Tevlina, A. S. (Moscow)

TITLE: The Synthesis and Applications of the Polymer Electrolytes (Sintez polimernykh elektrolitov i ikh primeneniye)

PERIODICAL: Uspekhi khimii, 1958, Vol 27, Nr 9, pp 1084-1100 (USSR)

ABSTRACT: First, the authors point out that in the present paper only those basic trends of the synthesis of polymer electrolytes are given which in their earlier paper (Ref 1) and in some other publications (Refs 2-6) have not been taken into account. In chapter one the synthesis of the soluble polymer electrolytes is discussed (Refs 7-16). Various model systems are mentioned which are of special importance for the investigation of the behavior of polymer electrolytes. In chapter two the synthesis of insoluble polymer compounds in the form of fibers is mentioned (Refs 17-27). Chapter three only deals with the synthesis of insoluble polyelectrolytes in granular form (ionites) (Refs 28-53). The authors deal in detail with the new anionites produced by the chemical transformation of styrene copolymers with divinyl benzene (Refs 54-101). In chapter four the authors discuss the synthesis of insoluble polyelectrolytes in form of membranes and films (Refs 103-143).

Card 1/2

The Synthesis and **Applications of the Polymer Electrolytes** SOV/74-27-9-3/5
(Sintez polimernykh elektrolitov i ikh primeneniye)

The methods of the synthesis of highly elastic homogeneous films (Ref 138) are of special interest. The use of heterogeneous membranes and films in installations for the electrodialysis is discussed. Finally the authors mention that they succeeded in producing elastic and resistive films using rubber and rubber-like elasticity gages. There are 5 figures, 4 tables, and 145 references, 47 of which are Soviet.

Card 2/2

TROSTYANSKAYA, Ye. B.

5(3) P.R PHASE I BOOK EXPLOITATION SOV/2995

Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk. Komissiya po khromatografii

Ionnyy obmen i yego primeneniye (Ion Exchange and Its Application) Moscow, Izd-vo AN SSSR, 1959. 318 p. Errata slip inserted. 4,000 copies printed.

Ed.: K. V. Chmutov, Corresponding Member, USSR Academy of Sciences; Eds. of Publishing House: T. G. Levi and N. G. Yegorov; Tech. Ed.: G. N. Shevchenko.

PURPOSE: This book is intended for factory and scientific research laboratory personnel, engineers, teachers and advanced students at vuzes concerned with the study of ion-exchange processes.

COVERAGE: This collection of seven articles treats the principal trends in the investigation and application of ion-exchange processes in heterogeneous media, and reviews the present state of ionite synthesis and application. No personalities are mentioned. References are given at the end of each article.

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Ion Exchange (Cont.) SOV/2995

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Ion Exchange (Cont.) SOV/2995

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S/064/59/000/07/006/035
B005/B123

AUTHORS: Trostyanskaya, Ye. B., Makarova, S. B., Tevlina, A. S.

TITLE: Chloromethylation of Copolymers of Vinylaromatic Compounds

PERIODICAL: Khimicheskaya promyshlennost', 1959, Nr 7, pp 577 - 580 (USSR)

ABSTRACT: In the introduction to the present paper the authors discuss some methods described in publications of the chloromethylation of polymers and copolymers in styrene (Refs 5-10). In all these methods chloromethyl ether or dichloromethyl ether were used as reagents. The use of these reagents in industrial syntheses is not advisable as they are very volatile and produce poisonous vapors. The authors investigated the conditions under which the Blanc reaction can be applied to a chloromethylation of various copolymers in vinyl-aromatic compounds. In the Blanc reaction formaldehyde and hydrochloric acid are used as reagents instead of chloromethyl ether. Ordinary zinc chloride usually serves as catalyst. When applying this reaction to the chloromethylation of copolymers of styrene, however, intermolecular secondary reactions are caused by the great mobility of the chlorine atom in the chloromethyl group, that lead to a cross-linking of the

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Chloromethylation of Copolymers of Vinylaromatic Compounds

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polymer. The authors found out that the degree of cross-linking during the chloromethylation of linear copolymers of styrene is reduced with an increasing amount of aliphatic residues (that cannot be chloromethylized). Table 1 shows the results of chloromethylation of copolymers in styrene with 1,3-butadienes depending on the number of styrene molecules in the polymer. In further experiments the Blanc reaction was applied to the chloromethylation of three copolymers of styrene with various degrees of cross-linking (diene components: divinylbenzene, diallyl maleate, ethylene glycol-dimethacrylate). Table 2 and figure 1 show the results obtained (influence of the diolefin structure upon the degree of chloromethylation and the period of reaction. The content of chlorine in the copolymers, after a certain period of chloromethylation (in all cases investigated 8-10 hours), reaches a maximum and then declines again. Of the three polymers investigated the copolymer of styrene with diallyl maleate showed the maximum chloromethylation under the same conditions. Table 3 shows the influence of catalysts upon the degree of chloromethylation. $ZnCl_2$, $SnCl_2$, and $SnCl_4$ increase the yield

Chloromethylation of Copolymers of Vinylaromatic Compounds

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of chloromethylation to the same extent. If the catalyst exceeds 75% of weight of the styrene compounds in the copolymer, the yield is not increased (Fig 2). The authors applied the Blanc reaction also to the chloromethylation of cross-linked copolymers containing condensed aromatic rings. The chloromethylated products of various copolymers of styrene and vinylnaphthalene were used for the production of insoluble quaternary ammonium bases that are important as anion-exchange resins. These quaternary ammonium bases have a swelling capacity in water that differs with the structure of the original copolymer. Thus it becomes possible to apply the chromatographic method of "ion-sieves", that up to now has only been used for separating cations, to the separation of anionsas well. Table 4 shows the most important characteristics of the strongly basic "anion-sieves" obtained by the authors. There are 3 figures, 4 tables, and 11 references, 5 of which are Soviet.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut imeni D. I. Mendeleyeva (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev)

Card 3/3

TROSTYANSKAYA, Ye.B.

PHASE I BOOK EXPLOITATION SOV/4194

Losev, Ivan Platonovich, and Yelena Borisovna Trostyanskaya

Khimiya sinteticheskikh polimerov (Chemistry of Synthetic Polymers) Moscow, Goskhimizdat, 1960. 574 p. Errata slip inserted. 15,000 copies printed.

Ed.: G. V. Tkachenko; Tech. Ed.: Ye. G. Shpak.

PURPOSE: This book is intended for chemists and technicians working in the plastics, synthetics, and color varnish industries. It may also be used as a textbook for students specializing in synthetics technology.

COVERAGE: The authors have attempted to generalize and systematize experimental data on conversions of polymeric compounds accumulated in recent years and published mainly in periodical literature. Special attention is given to a review of the representative groups (monomers) of polymeric compounds, their structure, and methods of synthesis. Physicochemical properties of polymers are discussed briefly. There is also information on the distribution of polymers into different classes in accordance with the generally accepted classification of organic compounds, as opposed to their classification as "polymerization"

Card ~~1/12~~

and "polycondensation" polymers. A separate chapter treats methods of synthesizing polymers and the mechanism of their synthesis processes. The authors thank R. Kh. Freydlina, A. A. Vansheydt, and G. V. Tkachenko. There are 156 figures and 31 tables. References appear as footnotes.

TABLE OF CONTENTS:

TROSTYANSKAYA, YE.B.

PHASE I BOOK EXPLOITATION SOV/5659

Osnovy tekhnologii sinteticheskogo kauchuka (Fundamentals of Synthetic Technology of Petroleum Chemistry) Moscow, Goskomizdat, 1960. 652 p. 3,500 copies printed.

Eds.: Bistrov, Arkadiy Il'ich, Professor, and Lev Aleksandrovich Pozdnyshev, Professor; Executive Ed.: L.A. Evsyn; Tech. Ed.: N.A. Bokhina.

PURPOSE: This book is intended for engineers and chemists of petroleum refineries and chemical plants, for councils of the national economy, planning organizations and scientific research institutes engaged in chemical processing and large-scale utilization of petroleum stock for the production of synthetic products.

COVERAGE: The book describes important commercial methods of producing hydrocarbon petroleum and gas stock and coal stock for the manufacture of alcohols, aldehydes, butanol, acids, detergents, synthetic rubber, fine chemicals, synthetic fibers, and synthetic resins. Flow sheets are included, and the basic equipment of the petrochemical industry is described. The physicochemical properties and use of intermediate and end synthetic products are also described. The state of the petrochemical industry outside the USSR and prospects for its development are covered. No personalities are mentioned.

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Fundamentals of Synthesis Technology (Cont.)

Card ~~18/21~~

S/190/60/002/009/016/019
B004/B060

AUTHORS: Trostyanskaya, Ye. B., Tevlina, A. S., Losev, I. P.

TITLE: The Problem of the Polymerization of Monomers in Swelling Copolymers

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 9, pp. 1413-1418

TEXT: The authors wanted to synthesize vitreous polyelectrolytes with high concentration of ionogenic groups. The following were polymerized: 1) Vinyl sulfonic acid or methacrylic acid in granules of the ion exchanger СДВ(SDV), a copolymer made of styrene and divinyl benzene, in which sulfo groups were introduced during a four-hour treatment with sulfuric acid at 80°C in the presence of $AlCl_3$; 2) 2-methyl-5-vinyl pyridine in granules of the ion exchanger АСД(ASD), the same copolymer that was chloromethylated by means of paraformaldehyde and hydrochloric acid in the presence of zinc chloride, and whose chlorine atoms were then substituted at 40-60°C (10 h) by triethanol amine, pyridine, or trimethyl amine. The

granules of the copolymer were swelled in the dissolved monomer, the excess solvent was removed, and polymerization was carried out during 4 h at room temperature, and 8 h at 55-85°C in sealed ampuls. After polymerization the granules were extracted with alkalies, acids, or organic solvents. Table 1 specifies the increase in grain size and weight of the granules, Table 2 the content of ionogenic groups, Table 3 the variation in the sulfur and nitrogen content, change of the acid number or amine number, and variation in the swelling capability. A figure shows the curve of potentiometric titration of insoluble polymeric acids and bases. Table 4 gives the reproducibility of the polymerization process. With a view to clarifying whether the ionogenic groups of the copolymers bear an influence on polymerization, copolymerization was carried out in $ZnSO_4$- or Na_2SO_4-treated films made of polyvinyl alcohol with sodium methacrylate or methyl vinyl pyridine hydrochloride. Also in this case, where an interaction between the functional groups of the polymer and copolymer was missing, a stable, swelling system was formed. The authors assume that the monomer is polymerized in the copolymer by grafting. There are 1 figure, 4 tables, and 7 references: 2 Soviet, 4 US, and 1 German.

The Problem of the Polymerization of Monomers in Swelling Copolymers

S/190/60/002/009/016/019
B004/B060

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva
(Moscow Institute of Chemistry and Technology imeni D. I. Mendeleyev)

SUBMITTED: April 19, 1960

Card 3/3

TROSTYANSKAYA, Ye.B.; LOSEV, I.P.; NEFEDOVA, G.Z.

Synthesis of insoluble polymer complexes. Zhur. VKHO 5 no.1:108 '60. (MIRA 14:4)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva.
(Complex compounds) (Polymers)

TROSTYANSKAYA, Ye.B.; LOSEV, I.P.; LU SYAN'-ZHAO [Lu Hsien-jao]

Chloromethylation of styrene-divinylbenzene copolymers. Zhur. VKHO 5 no.1:116-117 '60; (MIRA 14:4)

1. Khimiko-tekhnologicheskiy institut imeni D.I.Mendeleyeva.
(Styrene) (Benzene) (Chloromethylation)

S/075/60/015/004/005/030/XX
B020/B064

AUTHORS: Trostyanskaya, Ye. B. and Tevlina, A. S.

TITLE: Electron Exchanging Insoluble Polymers

PERIODICAL: Zhurnal analiticheskoy khimii, 1960, Vol. 15, No. 4, pp. 402 - 404

TEXT: In the introduction, the authors give a short survey of the redox reactions obtained in analytical chemistry by means of electron exchangers. Electron exchanging resins are synthesized by copolymerization of vinyl hydroquinone and styrene or vinyl pyridine, or by copolycondensation of hydroquinone and phenol with formaldehyde. The electron exchange is due to the reversible transition of the hydroquinone structure in the macromolecule to the quinoid structure. The electron exchangers suggested possess, however, a lower mechanical strength and chemical stability, and in addition to this, their capability of electron exchange decreases after several oxidation and reduction cycles. It has previously been suggested to prepare electron exchangers introducing sulfohydryl groups in styrene- and divinyl benzene copolymers. The authors examined the

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Electron Exchanging Insoluble Polymers

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B020/B064

methods of preparing sulfohydryl copolymers, determined the most favorable conditions for this reaction, as well as the properties of the thiol copolymers. The initial products were chloromethylated copolymers of styrene and divinyl benzene (SD), or of diallyl maleate (SAM). Copolymerization was carried out on grains having a diameter of 0.25 to 0.5 mm; the grains were caused to swell in dichloro ethane and then chloromethylated by simultaneous action of paraform and hydrogen chloride in the presence of $ZnCl_2$. The chloromethylated copolymer SD contains 14% chlorine and the chloromethylated copolymer SAM 16% chlorine. The substitution of the chlorine atoms in the copolymers by sulfohydryl groups can be carried out by the action of Na_2S or thiourea and subsequent saponification with lye. In the reaction with thiourea, which is more effective, the copolymer contains 11% sulfur and its acid number, determined with NaOH, is 156 mg/g; the entire sulfur forms thionyl groups in the copolymer. The copolymers swell slightly in water (18-20%) and retain their vitreous state and the strength characteristic of the initial copolymers. A figure shows the results of experiments on the reduction capacity of styrene- and divinyl benzene thiol copolymers, as well as of

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styrene- and diallyl maleate thiol copolymers on Fe^{3+}, and the reproducibility of this capacity after displacement of the adsorbed ions and reduction of the polymer. The last-mentioned procedure is based on the washing of the column with a 10% sodium hydrosulfite solution, i.e., with a volume 15 times as high as that of the thiol copolymer in the column. The total reduction capacity of the copolymer SD for the iron ion is 380.8 mg, and that of the copolymer SAM, 392 mg/g. On the basis of the results obtained it may be assumed that the majority of sulfohydryl groups in the copolymer oxidize and form sulfinic acid groups entering into an ion exchange reaction with part of the reduced cations. The sulfohydryl copolymers reduce 80 mg/g Cu^{+} from a $CuCl_2$ solution and 150 mg/g metallic silver from a silver salt solution. There are 1 figure and 9 references: 3 Soviet, 2 German, 3 US, and 1 British.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED: May 5, 1949 [Abstracter's note: Presumably 1959]

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87134

S/075/60/015/006/006/018
B020/B066

5.5700 2209, 1273, 1274

AUTHORS: Trostyanskaya, Ye. B. and Tevlina, A. S.

TITLE: Characteristics of Ionite Membranes

PERIODICAL: Zhurnal analiticheskoy khimii, 1960, Vol. 15, No. 6, pp. 681-685

TEXT: Investigations of the properties of ionite membranes had been previously carried out by Ye. A. Materova and F. A. Belinskaya (Ref. 11) as well as by V. S. Titov (Ref. 12). In addition to these papers, the authors compared the ion-exchange properties of ionites and the electrical resistivity of membranes made of them. The method described in Refs. 9 and 13 for the production of heterogeneous membranes was applied. The highest mechanical, chemical, and thermal stability of heterogeneous membranes is obtained by using rubber, especially chloroprene- or carboxylate copolymers of butadiene and styrene as binders. The ionite content in the membrane was 70%. In order to compare the influence of the type of ionogenic groups upon the ion-exchange properties and electrical conductivity of membranes, ionites with equal macromolecular structure

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Characteristics of Ionite Membranes

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B020/B066

must be selected. For this reason, a styrene-divinyl benzene copolymer was chosen, from which the following ionites were synthesized: cationite СДВ(SDV), cationite СФ(SF), cationite КС(KS), anionite АСД-В(ASD-v), and anionite АСД-С(ASD-s) with the same macromolecular structure, but different ionogenic groups. The properties of these ionites are described (Table 1). To characterize the ionization degree of ionites at different pH, the results of potentiometric titration of the cationites SDV, SF, СБС-1 (SBS-1), and KS are given in Fig. 1, and those of the anionites ASD-v, ASD-s, and ЭДЭ-10П (EDE-10P) in Fig. 2. The production of ionite films is described, and their properties are given (Table 2). A comparison of the electrical resistivity of films from SBS-1, SBS-2, and SDV shows that the electrical conductivity of the film is dependent on the concentration of ionogenic groups and its swelling capacity; but this dependence is not specific, and is determined, to a considerable extent, by the structure of macromolecules of the ionite selected. A comparison of properties of the films П-СБС-2 (P-SBS-2) and П-СДВ (P-SDV) discloses that the dielectric permeability of the membrane may be further increased by changing the structure of the ionite. The dependence of the internal resistivity of ionite films on the degree of

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Characteristics of Ionite Membranes

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ionization of ionogenic groups is investigated, which is simple at equal structures of the ionite, but when studying ionites of different structures the resultant proportionality of this dependence is frequently violated. N. V. Anashkina and V. M. Vinogradova are mentioned. There are 2 figures, 2 tables, and 14 references: 10 Soviet, 1 German, and 3 US.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva
(Moscow Institute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED: May 5, 1959

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88726

S/190/61/003/001/006/020
B119/B216

15.8114

AUTHORS: Trostyanskaya, Ye. B., Lu Syan'-zhao, Tevlina, A. S., Losev, I. P.

TITLE: Phosphorylation of insoluble polymers

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 1, 1961, 41-45

TEXT: The phosphorylation of polymers, according to data given in the chemical literature, results in increased heat resistance and altered softening point and solubility. The polymers acquire the properties of polyelectrolytes. The present work aims at establishing optimum conditions for the phosphorylation of insoluble polymers containing aromatic and chloro-alkyl groups. Phosphorylation was carried out on copolymers of styrene and divinyl benzene (A) and on a chloromethylated copolymer of styrene and divinyl benzene (B) (both in granular form). The polymers were maximally swelled in PCl_3 and then heated to boiling point after addition of dry $AlCl_3$. The highest degree of phosphorylation in the case of A, i.e. 93% (calculated for initial polymer), was attained

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Phosphorylation of insoluble polymers

by swelling (180%) at 70 - 75°C for 10 hr reaction time in presence of 2 $AlCl_3$ to each styrene unit. The product obtained was hydrolyzed by washing with water. Potentiometric titration of the hydrolyzate with NaOH yielded an acid number of 5.5 mg eq/g. The shape of the curve indicates a weak monobasic acid (accordingly, the P content of the copolymer was 17.1%). The polymeric phosphinous acid was oxidized by treatment with 25% nitric acid at 60°C for 8 hr. 10.2 mg eq/g NaOH were used up in the potentiometric titration of the product. This polyelectrolyte was designated as ionite CΦ-1 (SF-1). The shape of the curve reflects a dibasic acid. In all, 92.7% of the polymeric phosphinous acid was oxidized to phosphinic acid. (The former swells 20% in water, 40% in 0.3 N HCl, 160% in 0.3 N NaOH and the latter 135% in water, 85% in 0.3 N HCl and 210% in 0.3 N NaOH). Phosphorylation of B under the same conditions yielded a reaction product containing 11.95% P corresponding to a 79% transformation. In 0.3 N HCl the hydrolyzate swelled up to 45%, and up to 110% in 0.3 N NaOH. The acid number was 6.2 mg eq/g, corresponding to 79% phosphinic acid (with respect to the monomeric vinyl benzyl chloride units in which an H atom is substituted

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B119/B216

Phosphorylation of insoluble polymers

by reaction with PCl_3) and 57% phosphinous acid (with respect to monomeric styrene units in which one of the H atoms of the aromatic nucleus is substituted). After nitric-acid oxidation the acid number increased to 7.5 mg eq/g denoting quantitative transformation of the phosphinous acid groups. This polyelectrolyte was designated as ionite CФ -2 (SF-2). The product swells up to 50% in water, 50% in 0.3 N HCl, 120% in 0.3 N NaOH. The dissociation constants of the polymeric acids obtained were calculated from the potentiometric titration data: pK_1 is 3.4 for SF-1 and 4.9 for SF-2; pK_2 is -7.1 for SF-1 and -8.0 for SF-2. There are 3 figures and 17 references: 9 Soviet-bloc and 7 non-Soviet-bloc.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED: May 27, 1960

Card 3/3

15.11.24 1128

25597
S/191/61/000/008/003/006
B110/B201

AUTHORS: Trostyanskaya, Ye. B., Venkova, Ye. S.

TITLE: Hardening of epoxy-glue compounds and varieties

PERIODICAL: Plasticheskiye massy, no. 8, 1961, 16 - 18

TEXT: In consideration of the fact that polyamines curing epoxy resins at room temperature yield glues having a life of not over 40 - 60 min, whereas acid anhydrides yielding glues of an 8 - 12 hr life cure at 180 - 200°C, they are unsuited for many purposes. It was, therefore, the aim of the present investigation to achieve a temperature drop and an increase of the rate of epoxy resin curing by maleic acid anhydride (MA) in the presence of a catalyst. Among tertiary amines (pyridine, diethyl aniline, triethanol amine), diethyl aniline (DEA) offered an optimum curing rate. The tearing strength (symmetrical) in kg/cm^2 of the composition of ЭД-6(ED-6) with MA and DEA is dependent, at 80°C on the curing time: 2 = 100 - 160; 4 = 550 - 680; 6 = 540 - 653; 8 = 590 - 640; 10 = 540 - 640. 4 hr at 80°C is an optimum. The strength in kg/cm^2

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depends, for a curing time of 4 hr, on the curing temperature in °C: 80 = 550 - 680; 100 = 520 - 635; 120 = 510 - 635; 160 = 515 - 690. Table 1 shows the temperature dependence of thermal stability with DEA. Table 2 presents the accelerating action of DEA upon the strength of МАТИ К-3(MATI K-3) glue. An addition of dibutyl phthalate and liquid thiocol augments the shear and impact strength. 30 % of phenol formaldehyde resin part also effects curing. Epoxy resin ED-6 and single-stage resin К-21(K-21) were heated for 40 - 50 min at 95 - 110°C. Optimum strength was obtained with 40 % single-stage resin part. With the exception of resin with 10 % single-stage resin, all melting products prepared with different component ratios were hard and brittle. The glue film was applied hatchwise at 70°C - 80°C on samples reduced to pencil shape. They were heated for 6 hr in the drying chamber at 150 - 160°C. With 40 % single-stage resin the following was found at 150 - 160°C for the curing time dependence in hr of strength in kg/cm^2 (symmetrical scheme): 2 = 230 - 300; 4 = 380 - 465; 6 = 460 - 500; 8 = 430 - 510. The low strength values of ED-6 with single-stage resin, compared with MATI K-3, are explained by a higher degree of brittleness and a lower adhesion on metal. High-molecular plasticizers: polyvinyl butyral (PVB) and polyvinyl acetate (PVA) with a

Hardening of epoxy-glue ...

different degree of polymerization were added to augment the elasticity. A strength increase to 610 kg/cm^2 was achieved only by means of an addition of PVA with a low polymerization degree. A filler addition augmented the strength of MATI K-3 to 816 kg/cm^2. МАТИК-1(MATI K-1) has a longer service life and thermal stability than MATI K-3. The strength of the gluing seam with a symmetrical scheme at 150°C amounts to 220-300 kg/cm^2. The strength dependence from the curing time at 150-160°C for epoxy resin with dicyandiamide curing agent is as follows:

hardening time in minute:	15	30	45	60
strength limit with symmetrical rupture in kg/cm^2:	23 18-28	345 284-392	425 380-470	475 440-500

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Hardening of epoxy-glue ...

hardening time in minute:	120	180	240
strength limit with symmetrical rupture in kg/cm^2:	615 / 516-660	730 / 653-760	740 / 640-770

A filler addition augments the strength to 800 - 1,000kg/cm^2. The temperature dependence in °C of strength in kg/cm^2 (symmetrical scheme) from ED-6, dicyandiamine and filler (МАТИ К-2(MATI K-2) glue) is as follows: 20 = 780 - 1,000; 60 = 750 - 950; 100 = 410 - 550; 120 = 380 - 430; 140 = 220 - 280. Gluing tests on different steel products with MATI K-2 showed a greater strength, service life, curing rate, and a lower curing temperature than glues with MA as curing agent. Epoxy glues have the greatest symmetrical tearing strength of all hitherto known glue compounds, but a shear strength of only 180 - 200 kg/cm^2. A structural plastification would be suitable for an increase of the shear strength and of the flexibility of macromolecular chains. Gluing seams of ED-5 with glycol

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Hardening of epoxy-glue...

(modified ЭДТ (EDG) resin) were examined. Glue МАТИ К-4 (MATI K-4) consists of EDG resin, dicyandiamine (or maleic acid anhydride), and filler. After a 4-hr curing it had a tensile strength of 600-700 kg/cm^2 and a shear strength of 280-300 kg/cm^2; these values exceed those hitherto known. M. S. Ivanchikova and R. M. Popkova assisted in the experiments. There are 2 tables and 10 references: 5 Soviet-bloc and 5 non-Soviet-bloc. The references to English-language publications read as follows: Ref 4: W. Fisch, W. Hofman, J. Polymer Sci., 12, 497 (1954); P. Castan, US Patent 2, 324, 483 (1943). Ref 7: W. Fisch, W. Hofman, Koskikalio, J. Appl. Chem., 6, 429 (1956). Ref 8: L. Schichter, J. Wynstra, Ind. Eng. Chem., 48, 86 (1956)

Card 5/7

TROSTYANSKAYA, Ye.B.; TEVLINA, A.S.; BESSONOVA, L.V.

Using ion exchangers for a simultaneous extraction of cations and anions from solutions. Plast.massy no.11:15-16 '61. (MIRA 14:10)

(Ion exchange resins)

TROSTYANSKAYA, Ye.B.; MAKAROVA, S.B.; TEVLINA, A.S.

Insoluble polymeric quaternary ammonium bases. Vysokom.soed. 3 no.9:1358-1363 S '61. (MIRA 14:9)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I.Mendeleyeva.

(Amination) (Polymers)

VERKHOVSKAYA, Z.N.; VYSTAVKINA, L.B.; KLIMENKO, M.Ya.; TEVLINA, A.S.; TROSTYANSKAYA, Ye.B.

Coarse-grained ion exchangers as catalysts of the hydration of olefins and dehydration of alcohols. Khim.prom. no.4:248-250 Ap '62. (MIRA 15:5)
(Ion exchange resins) (Hydration) (Dehydration (Chemistry))

38716

S/191/62/000/007/003/011
B124/B144

15.811

AUTHORS: Trostyanskaya, Ye. B., Vinogradov, V. M., Kazanskiy, Yu. N.

TITLE: Molding materials based on thermosetting polyesters. Communication I. Polyester molding materials with powdery fillers

PERIODICAL: Plasticheskiye massy, no. 7, 1962, 15-19

TEXT: The applicability of the Soviet unsaturated polyesters ПН-1 (PN-1), ТМГФ-11 (TMGF-11), and ТПАС (TPAS) (thermostable polyacrylate binder) as binders for molding materials is investigated. The polyesters were cured in cylindrical molds in the presence of 1% benzoyl peroxide at 120°C in amounts of 12 g each, and were kept at 150°C for 5 hr. The volume shrinkage was determined from the change in density of the polyester after curing. Quartz powder, talc, mica, and kaolin were used as fillers and mixed with the binder. Benzoyl peroxide was added in a mixture with styrene, diallyl phthalate, dibutyl phthalate, or polyacrylate. Molding materials based on PN-1, TMGF-11, and TPAS are moldable for 4 hr, 8 hr, and 1.5 months, respectively, this period depending also

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Molding materials based on ...

on the shape and size of the block. If a surface-active substance is added instead of part of the filler, the storage stability of the molding material increases, whilst addition of a thickener confers thixotropic properties. The following formula was generally applied (parts by weight): 100 polyester, 1 initiator, 84 mineral filler, and 66 thickener. Before molding, the molding powder must be treated by rolling to remove the air. The fluidity of pastes got from various polyesters with 60-70% filler varies between 50 and 80 mm at a molding pressure of 90 kg/cm^2 and a mold temperature of 120°C. The rate of polymerization of the polyacrylate and the ratio polyacrylate:polymaleinate exert a decisive effect on the physicochemical properties of the cured materials. The curing of polymaleinates with polyacrylates of moderate polymerization rate is analogous to the process of curing with polystyrene. The best results were obtained with the use of TPAS + PN-1. A pressure of 50-200 kg/cm^2, a temperature of 120°C, and a curing time of 1 min/mm were adopted for powdery molding materials. Table 6 shows the properties of the products obtained. Cold extrusion can be used for treating the molding material pastes. Thanks are expressed to P. Z. Li and Ya. D. Avrasin. There are 2 figures and

Card 2/4 3

6 tables. The most important English-language references are: B. Parkyn, Brit. Plast. 32, 29 (1959), J. D. Davies et al., Appl. Plast. 2, 11, 45 (1959); 2, 12, 43 (1959); R. B. White, R. S. Jackson, Mod. Plast. 36, 7, 117 (1959); 36, 9, 107 (1959).

Table 6. Properties of products from molding materials based on various polyesters and phenoplasts. Legend: (A) Properties, (B) polyester, (C) PN-1, (D) TMGF-11, (E) TPAS, (F) TPAS + PN-1, (G) phenol formaldehyde resin with mineral filler, (H) strength on static bending, kg/cm^2, (J) specific impact strength, $kg \cdot cm/cm^2$, (K) condition of rods after 5 hr at 200°C, (L) strength after 5 hr at 200°C, %, (M) heat resistance according to Martens, °C, (N) water absorption after 24 hr, g/dm^2, (P) specific gravity, (Q) surface resistivity, ohms, (R) volume resistivity, ohm·cm, (S) tan δ at $1 \cdot 10^6$ c/s, (T) dielectric permeability, (U) rod covered with deep cracks, (V) small cracks, (W) no cracks, (X) test impossible because samples destroyed on heating.

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40910

S/191/62/000/010/003/010
B101/B186

15.8210,
15.8350

AUTHORS: Trostyanskaya, Ye. B., Vinogradov, V. M., Kazanskiy, Yu. N.

TITLE: Molding compositions on the basis of hardening polyesters. Polyester glass fiber plastics

PERIODICAL: Plasticheskiye massy, no. 10, 1962, 14 - 16

TEXT: On the basis of papers by J. D. Davies et al. (Appl. Plast., 2, 11, 45 (1956), 2, 12, 43 (1959)) it is suggested that regular distribution of glass fibers in glass reinforced plastics (GRP) should be ensured by adding thixotropic additives in the following process: The filler (quartz flour, kaolin, chalk, talcum, or mica) and a thickener are mixed in a ball mill (mixture "a"); after adding a polyester (polyacrylate or polyacrylate maleinate) to mixture "a"; paste "b" is formed in a mixer with z-blades and is applied to a continuous band of glass fiber; the excess is removed and the band is cut into pieces; the polyester is then mixed with mixture "a" until it gives a damp powder (mixture "c") which in turn is mixed with the cut glass fiber covered by paste "b". At 120°C and a pressure of 90 kg/cm^3, the molding composition according to Raschig reached a viscosity of 200 mm

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Molding compositions on ...

owing to preliminary impregnation of the glass fiber with the thermoplastics. In this way, GRP was obtained with 50% glass fiber uniformly distributed. The bending modulus is 800 - 850 kg/cm^2 for GRP containing 20% glass fiber and 1400 kg/cm^2 with 50% glass fiber. The physicomechanical properties depend on the type of mineral filler: the bending modulus of rupture in bending was 690 kg/cm^2 with quartz flour and 1290 kg/cm^2 with talcum. The resulting GRP had the following composition (in portions by weight) : 30 - 40 polyester, 20 - 50 glass fiber , 5 - 50 powdered filler, and 10-30 thickener. The bending modulus of GRP depends on the length of glass fiber it is 395 - 450 kg/cm^2 with 10% glass fibers 5 mm long, and 525 - 640 kg/cm^2 when they are 15 mm long. If the glass fiber is longer than 15 - 20 mm, the bending modulus decreases and the measured values become too scattered. The highest heat resistance of GRP was reached with polyacrylate maleinate. For the type TMAC+MH-1 (TPAS+PN-1) binder, after 140 hrs of ageing at 200°C, a weight loss of 2% was observed: with 40% binder, 20% glass fiber, and 40% mineral filter. The impact strength and other mechanical properties of the test specimens proved to be of special interest. There are 4 figures and 5 tables.

Card 2/2

TROSTYANSKAYA, Ye.B.; KOMAROV, G.V.; SHISHKIN, V.A.

Bonding of laminated plastics by means of high frequency currents or ultrasonic waves. High frequency and ultrasonic welding of articles made of laminated plastics with the use of addition agents. Plast. massy no.12:30-32 '62. (MIRA 16:1)
(Laminated plastics—Welding)

TROSTYANSKAYA, Ye.B.; NEFEDOVA, G.Z.

Cation exchangers of higher selectivity in the processes of ion exchange (polymer complexons). Zhur.anal.khim. 17 no.4: 411-415 Jl '62. (MIRA 15:8)

1. D.I.Mendeleev Moscow Chemico-Technological Institute. (Complexons) (Ion exchange)

TROSTYANSKAYA, Ye.B.; VENKOVA, Ye.S.; PAVLOVA, A.P.; IVANCHIKOVA, M.S.

Synthesis of hardening polyester acrylates in the presence of insoluble polyelectrolytes. Plast.massy no.2:12-13 '63. (MIRA 16:2)

(Acrylic acid) (Esters) (Electrolytes)

TROSTYANSKAYA, Ye. B.

AID Nr. 975-8 23 May

PHOSPHORUS-CONTAINING RESINS AND THEIR USE IN THE PRODUCTION OF GLASS-FABRIC-REINFORCED PLASTICS AND FOAMED PLASTICS (USSR)

Trostyanskaya, Ye. B., Ye. S. Venkova, L. F. Martynkina, L. V. Aristovskaya, and Hu Lien-chieh. Plasticheskiye massy, no. 4, 1963, 16-18. S/191/63/000/004/005/015

The authors have synthesized resins of the ФТ and Ф0 novolak and the РО novolak or resol types, which contain 0.5, 0.7 to 0.9, and 4.83 to 6.90% P, respectively. ФТ is a dark-red solid soluble in furfural, ethyl alcohol, or acetone and compatible with epoxy resins or organosilicon compounds. When cured with "hexa," ФТ yields a product (ФТГ) which has a Vicat softening point of 180° C and loses 7.9% of its weight when kept in the flame of a Bunsen burner for 1 min. Foamed plastic from ФГ resin surpasses foamed plastic ФФ in heat and fire resistance. The properties of Ф0 are similar to those of ФГ, but its fire resistance is somewhat

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AID Nr. 975-8 23 May

PHOSPHORUS-CONTAINING RESINS (Cont.) S/191/63/000/004/005/015

higher. PO is a reddish-brown viscous mass soluble in and compatible with the same substances as ФТ and ФО. The elasticity and adhesion to glass fibers and metals of P-containing novolak resins is higher than that of the common phenol formaldehyde resins, and ФТ and ФО resins can yield glass-fiber-reinforced plastics СТ-ФТГ and СТ-ФОГ, respectively, whose strength and fire and heat resistance surpass those of the glass-fabric-reinforced plastic НАСТ. The combination of ФТ, ФО, or РО with furfural, cured in the presence of hexa, yields fire-resistant ФТФ, ФОФ, and РОФ resins, respectively, which have a bending strength of 880 to 930 kg/cm^2. These resins yield the fire- and heat resistant glass-fabric-reinforced plastics СТ-ФТФ, СТ-ФОФ, and СТ-РОФ, which have a bending strength of 3300 to 4100 kg/cm^2. Combination of ФТ with epoxy resin yields the resin designated ФТЭ. The properties of the glass-fabric-reinforced plastic СТ-ФТЭ are similar to those of СТ-ФТФ. [BAO]

Card 2/2

ACCESSION NR: AP3001574 S/0191/63/000/006/0013/0015

AUTHOR: Trostyanskaya, Ye. B; Venkova, Ye. S.; Kazanskiy, Yu. N.; Stepanov, A. I.; Aristovskaya, L. V.; Kosareva, N. G.

TITLE: Combined hardenable polyesters for preparing articles by the spray-coating method

SOURCE: Plasticheskiye massy, no. 6, 1963, 13-15

TOPIC TAGS: polymaleate, polyacrylates, spray-coating of glass fiber

ABSTRACT: Recipes were worked out for curable polyesters (PM-1 type polymaleate with polyacrylates 712 and TGM-3) which are suitable for making large objects of complex shape by spraycoating of glass fiber. Partially removing the lubricant from the glass fiber strengthens the final spray-coated article, permits more even distribution of resin on the fiber. Curing for several hours at 150 degrees appears optimum. A glass fiber laminate made of glass cloth ASTT(b)-S sub 2, without lubricant removal, was formed at ambient temperature under 0.35 kg/sq. cm. After 6 days at 20C the strength was only 1700 kg/sq. cm.; upon curing 4 hours at 150 degrees, strength increased to 3500 kg/sq. cm. Amount of resin binder was 32%; heating for additional 50 hours at 200 degrees decreased the weight by only about 4%. "The authors express thanks to Ya. D. Avrasin for supplying them polyacrylate

Card 1/2

ACCESSION NR: AP3001574

712 for the study." Orig. art. has: 4 tables and 1 figure.

ASSOCIATION: none

SUBMITTED: 00

SUB CODE: 00

DATE ACQ: 01Jul63

NO REF SOV: 002

ENCL: 00

OTHER: 000

Card 2/2

L 18959-63 EPR/EWP(j)/EPF(c)/EWT(m)/BDS AFFTC/ASD Ps-4/Pc-4/Pr-4
RM/WW/MAY
ACCESSION NR: AP3006537 S/0191/63/000/009/0030/0033 81

AUTHORS: Trostyanskaya, Ye. B.; Kazanskiy, Yu. N.; Skorova, A. V.; Poymanov, A. M.; Snegireva, I. A.

TITLE: Determining the quality of glass cloth and glass roving sizing

SOURCE: Plasticheskiye massy*, no. 9, 1963, 30-33

TOPIC TAGS: glass cloth sizing, glass, glass roving sizing, fiberglass water resistance

ABSTRACT: A method was worked out for evaluating AGM-3 sizing and conditions were recommended for sizing FN fiberglass with AGM-3. The amine number of the sizing film was determined by titration with HCl, readings being taken in the first couple minutes of the titration. The continuity of the sizing film was determined by electrically measuring the amount of moisture that would evaporate through the film, using an IEN-1 Q-meter, AVM2 voltmeter and KVTl/EN self-recording potentiometer. Orig. art. has: 7 figures, 1 equation.

Card 1/2

S/190/63/005/001/006/020
B117/B186

AUTHORS: Trostyanskaya, Ye. B., Tevlina, A. S.

TITLE: Synthesis of ion exchange films by graft copolymerization

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 5, no. 1, 1963, 44-48

TEXT: An improved method of producing high-elastic ion exchange films with limited swelling, in which the polyelectrolyte is distributed as a fine powder in the apolar elastomer, is described. This method is based on a proper choice of the system film + monomer (+ solvent) so as to guarantee maximum swelling in the monomer or its solution. Methacrylic acid, vinyl sulfonic acid, and 2-methyl-5-vinyl pyridine were used as monomers. Limitedly swelling films (100-200%) were produced from polyvinyl alcohol with reticular structure. These films become high-elastic and solid after treatment (12 hrs, 45-50°C) with an aqueous solution of glyoxal (3%), Na_2SO_4 (20%), and H_2SO_4 (10%). For graft copolymerization, peroxide or hydroperoxide were added to the aqueous monomer solution. 25-33.6% by weight of polymer was grafted, corresponding to a concentration of 1.79-4.1 mg·eq/g ionogenic groups. The concentration of such groups

Card 1/2

Synthesis of ion exchange films ...

can be increased by 25-28% by repeated graft copolymerization under the same conditions. Although the graft copolymerization is always accompanied by homopolymerization of the monomer, the yield of homopolymer was only 17-20%. By grafting polymeric acids, the films remained outwardly unchanged but lost some of their elasticity. Grafting of polymethyl vinyl pyridine made the films dull but more elastic. The reduction of swelling in water, observed after grafting, was explained by formation of additional crosslinks between macromolecules of polyvinyl alcohol. With respect to electrical conductivity and transference number, the films obtained exceed the heterogeneous ion exchange films applicable in electric ion exchange apparatus. There are 3 figures and 3 tables.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED: July 14, 1961

S/190/63/005/001/007/020
B101/B186

AUTHORS: Trostyanskaya, Ye. B., Nefedova, G. Z.

TITLE: Synthesis of insoluble polymer complexones

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 5, no. 1, 1963, 49-56

TEXT: Styrene divinyl benzene (SD) copolymer containing 3% divinyl benzene was used as initial substance to synthesize insoluble complexones for ion exchange chromatography, which together with cations form chelates. (A) Styrene divinyl benzene was swollen in dichloro ethane, chloromethylated with HCl and paraform in the presence of $ZnCl_2$, then aminated in chloroform containing hexamethylene tetramine, and acetylated with chloroacetic, bromoacetic, and iodoacetic acids or with ethyl chloracetate. The resulting products had a very low acid number and no complex-forming capacity. They probably contained more aminoacetic than iminodiacetic radicals. (B) Chloromethylated SD was aminated with diethanol amine, the degree of amination of chloromethyl groups reaching 80%. The hydroxyl groups were then oxidized into carboxyl groups. Experiments with $KMnO_4$, chromate mixture, and HNO_3 showed that the optimum

Card 1/3

Synthesis of insoluble polymer ...

oxidant was 56% HNO_3 at 70°C in the presence of $FeCl_2$. The resulting -2 (KT-2) complexone had an acid number of 3.5 - 3.7 mg-equ/g and contained 1.7 - 1.9% N. Oxidative degradation of the copolymer occured as side reaction. Because of this reaction the copolymer is assumed to contain 73% iminodiacetic radicals and 27% carboxyl radicals. Potentiometric titration confirmed a two-stage dissociation. (C) Chloromethylated SD was aminated with iminodiacetic (I) dinitrile or diethyl ester, iminodipropylic (II) dinitrile or diethyl ester, and was then saponified in 0.1 - 0.5 N NaOH. Oxidative degradation did not occur and the degree of amination reached only 60 - 70% in I, 50% in II. Dichloro ethane was the best solvent. The degree of amination was lower in tetrahydrofuran, dimethyl formamide, dioxane, nitromethane, or ethanol. The acid number of -2 (KT-2N) complexone, a copolymer containing I groups, was 2.5 - 2.7 mg-equ/g, that of the -4 (KT-4) complexone, a copolymer containing II groups, was 2.6 - 2.8 mg-equ/g. The swelling capability of these complexones in 0.1 NaOH was 20 - 25%. If the K^+ sorption is put at unity the following values are obtained for the complex-forming capacities of KT-2N, KT-2, and KT-4:Cu^{2+} 0.625, 0.432,

Card 2/3

Synthesis of insoluble polymer ...

and 0.380 respectively; Zn^{2+} 0.657, 0.370, and 0.350 respectively; Ca^{2+} 0.344, 0.228, and 0.170 respectively. The weaker complex-forming capacity of KT-2 by comparison with KT-2-N is explained by the oxidative degradation and that of KT-4 by the greater distance between the nitrogen atom and the carboxyl group. There are 4 figures and 2 tables.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED: July 14, 1961

Card 3/3

S/190/63/005/003/005/024
B101/B186

AUTHORS: Trostyanskaya, Ye. B., Makarova, S. B., Losev, P. P.

TITLE: Insoluble polymeric quaternary phosphonium compounds

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 5, no. 3, 1963, 325-329

TEXT: The reactions of chloromethylated styrene divinylbenzene (SVB) or chloromethylated styrene-divinyl copolymer (SV) with triphenylphosphine (I), methyldiethanolphosphine (II) or tripropylphosphine (III) were studied in order to obtain a polyelectrolyte usable in chromatography. The chlorine content of the copolymers was approximately 14%. Dimethylformamide proved to be the most suitable swelling agents for the reaction of the copolymers with the phosphines. With its application a 73% phosphination could be achieved while dioxane dichloroethane and nitromethane gave smaller yields. The optimum was found to be 2 - 3 moles of phosphine per elementary link of the copolymer, 90°C. The constants of the reaction rate in phosphination with III were $2.8 \cdot 10^{-5}$ for SVB at 40°C, $4.27 \cdot 10^{-5}$ at 70°C, $6.28 \cdot 10^{-5}$ at 90°C, and for SV $7.4 \cdot 10^{-4}$ at 70°C, $9.2 \cdot 10^{-4}$ at 90°C. The degree of conversion is 70 - 73% for SVB + I, 61% for SVB + II, 52% for

Card 1/3

Insoluble polymeric quaternary...

SVB + III, and 76% for SV + I, 64% for SV + II, 58% for SV + III. The following values were obtained for the constants of the anion exchange of the insoluble onium compounds where the chlorine in the polymer is substituted by trimethylamine (A), trimethanolamine (B), dimethylaniline (C), I, II or III:

exchanged anions	A	B	C	I	II	III
SO_4^{2-}/Cl^-	1.0	0.25	0.069	0.405	0.63	1.2
SO_4^{2-}/Br^-	3.46	0.37	0.61	0.605	1.4	3.1
SO_4^{2-}/I^-	5.0	1.59	2.4	0.43	2.3	5.6
Cl^-/NO_3^-	2.9	0.92	2.76	2.18	1.6	2.2
Cl^-/CH_3COO^-	0.258	0.116	0.197	0.165	0.153	0.28

The somewhat higher exchange constants of the phosphonium compounds allow of easier chromatographic separation from anions and solutions of salt

Card 2/3

S/190/63/005/003/005/024
B101/B186

Insoluble polymeric quaternary...

mixtures. The insoluble phosphonium compounds can be used as anion exchange filters. Their adsorptive power for the Cl^-/NO_3^- exchange is at about 1.4 - 1.5 mg-equ/g. There are 1 figure and 6 tables.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED: July 31, 1961

Card 3/3

TEVLINA, A.S.; TROSTYANSKAYA, Ye.B.

Synthesis of soluble polyelectrolytes by sulfonation of polystyrene. Vysokom.soed. 5 no.8:1178-1182 Ag '63. (MIRA 16:9)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I.Mendeleyeva.
(Styrene polymers) (Sulfonation) (Electrolytes)

TROSTYANSKAYA, Ye.B.; TEVLINA, A.S.; NAUMOVA, F.A.

Suspension copolymerization of styrene with divinylbenzene in the presence of telogen. Vysokom.soed. 5 no.8:1240-1244 Ag '63. (MIRA 16:9)

(Styrene) (Benzene) (Polymerization)

TROSTYANSKAYA, Ye.B.; LOSEV, I.P. [deceased]; MAKAROVA, S.B.

Synthesis of polymeric insoluble sulfonium compounds. Vysokom. soed. 5 no.12:1824-1828 D '63. (MIRA 17:1)

1. Moskovskiy khimiko-tekhnologicheskiy institut im. D.I. Mendeleyeva i Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv.

ACCESSION NR: AP4041785 S/0191/64/000/007/0052/0055

AUTHOR: Trostyanskaya, Ye. B., Poymanov, A. M., Kazanskiy, Yu. N.

TITLE: Methods for investigating the surface properties of glass fibers used for making glass plastics

SOURCE: Plasticheskiye massy*, no. 7, 1964, 52-55

TOPIC TAGS: glass fiber, glass plastic, wettability, electrical conductivity resin, organosilane, glass fiber wettability, glass fiber surface property, plastic conductivity, filler AM-2, filler MR-1, trimethylchlorosilane, binder adhesion

ABSTRACT: Since the adhesion of binders to the glass fiber is one of the main factors determining the strength of glass plastics, it is very important to investigate the wettability of finished glass fibers by binders. Inorder to investigate the surface properties of glass fibers, methods were developed to study the surface electrical conductivity of the elementary glass filaments and their wettability by liquids and resins. Two methods based on the measurement and photography of the meniscus of liquid around the fiber are discussed, and theoretical calculations are presented for the meniscus forms corresponding

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ACCESSION NR: AP4041785

to different wetting angles. The apparatus for determining fiber wettability is illustrated in Fig. 1. of the Enclosure. Glass fibers treated with organosilane fillers (AM-2 with amino and imino groups, MR-1 with functional phenyl groups) as well as fibers treated with trimethylchlorosilane were investigated, and the different wetting angles were determined. Pure glass fibers were completely wetted by water, the contact angle being zero. These results show that the wettability of water-repellent glass fibers is directly correlated with the polarity of the radicals present on their surface. The change in polarity and wettability of the glass surface due to chemical treatment also causes the surface conductivity to change. The direct measurement of the surface resistance of the elementary fibers is therefore the most suitable method for determining the water-repellency and the quality of the finish. The apparatus for measuring the electrical conductivity of the fiber surface is described. It was found that the surface conductivity of glass fibers is higher by 1.5-2 orders of magnitude than that of block glass. This shows the substantial difference between the surface composition of glass fibers and that of block glass. Orig. art. has: 5 figures and 5 formulas.

ASSOCIATION: None

Card 2/4

ACCESSION NR: AP4041785

SUBMITTED: 00 ENCL: 01

SUB CODE: MT NO REF SOV: 010 OTHER: 008

Card 3/4

ACCESSION NR: AP4041785

ENCLOSURE: 01

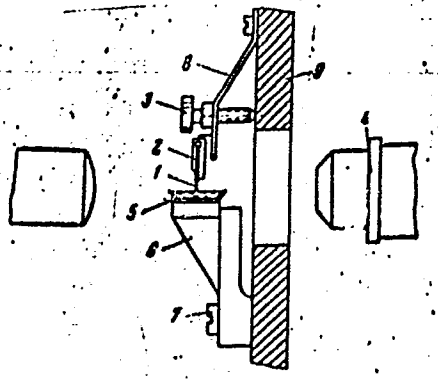


Fig. 1. Schematic representation of a set-up for determining fiber wettability: 1 - fiber; 2 - clamp; 3 - screw for moving the fiber along the axis of the objective; 4 - objective; 5 - container of fluid; 6 - bracket; 7 - screw; 8 - holder; 9 - microscope stage.

Card 4/4

Card

TROSTYANSKAYA, Ye.B.; POYMANOV, Ye.B.; KAZANSKIY, Yu.N.

Dependence of the strength of glass plastics on the modification of the angle of wetting of waterproofed glass fibers with binders. Plast. massy no.8:20-23 '64.

(MIRA 17:12)

L 20996-66 EWT(m)/EWP(j)/T/ETC(m)-6 WW/RM

ACCESSION NR: AP5016878 UR/0374/65/000/003/0008/0014
678:539.4.019

AUTHOR: Trostyanskaya, Ye. B. (Moscow); Poymanov, A. M. (Moscow)

TITLE: Causes of the decreased strength of fiber-glass reinforced plastics based on phenol-formaldehyde resin

SOURCE: Mekhanika polimerov, no. 3, 1965, 8-14

TOPIC TAGS: phenol-formaldehyde resin, fiber-glass reinforced plastic, plastic mechanical property, resin hardening

ABSTRACT: A study of the kinetics of hardening of phenol-formaldehyde resin in the presence of glass and quartz fibers established that one of the chief causes of the decreased strength of fiber-glass reinforced plastics based on this resin is a decrease in the rate and extent of hardening of the resin in layers close to the fiber as compared to the resin in the bulk. This decrease is due to the presence on the surface of the glass fiber of a hydrated film having a high concentration of hydroxyl ions and to the formation of hydrogen bonds between the hydroxyphenyl groups of the resin and the silanol groups on the surface of the fiber. Chemical treatment of the glass fiber minimizes the factors responsible for the decrease in the rate and extent of hardening, so that despite a drop in the surface energy

Card 1/2

L 20996-66

ACCESSION NR: AP5016878

of the fiber, the strength of the fiber-glass reinforced plastic is increased. Orig. art. has: 5 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 28Nov64 ENCL: 00 SUB CODE: MT

NO REF SOV: 005 OTHER: 000

Card 2/2 BK

ACCESSION NR: AP4043322 S/0191/64/000/008/0020/0023

AUTHOR: Trostyanskaya, Ye. B.; Poymanov, A. M.; Kazanskiy, Yu. N.

TITLE: Dependence of the strength of glass-reinforced plastics on changes in the binder contact angle of glass fibers made water repellent

SOURCE: Plasticheskiye massy*, no. 8, 1964, 20-23

TOPIC TAGS: glass reinforced plastic, coupling agent, glass fiber finish, glass reinforced plastic strength

ABSTRACT: The effect of glass-fiber finish on the strength of glass-reinforced plastics was investigated by determining the wettability (contact angle) of the fiber by various binders at 20 to 120C. The alkali-free glass fiber used was lubricated, heat cleaned, and unfinished or finished with a coupling agent (the MR-1 type, in which hydroxyphenoxy groups remain after application; the amino- and imino-group-containing coupling agents AM-2 and AGM-3; or trimethylchlorosilane) or by chlorination followed by substitution of Cl atoms by ethyl, allyl, phenyl, or methacryloyl radicals. The

Card 1/2

ACCESSION NR: AP4043322

resins used were ED-6 epoxy resin, K-81 organosilicon resin, FN binder (a solution of phenol-formaldehyde resin in furfural), or 911 polyester resin. Wettability with water was also determined. It was found that fiber wettability with these binders decreases with increasing water repellency. Mechanical tests for oriented glass-reinforced plastics made with the above materials showed that the strength characteristics of epoxy and phenol-furfural glass-reinforced plastics depend on the binder-fiber contact angle and are independent of the presence of a chemical bond between the fiber and the binder. Orig. art. has: 4 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 00	ATD PRESS: 3083	ENCL: 00
SUB CODE: MT	NO REF SOV: 010	OTHER: 011

Card 2/2

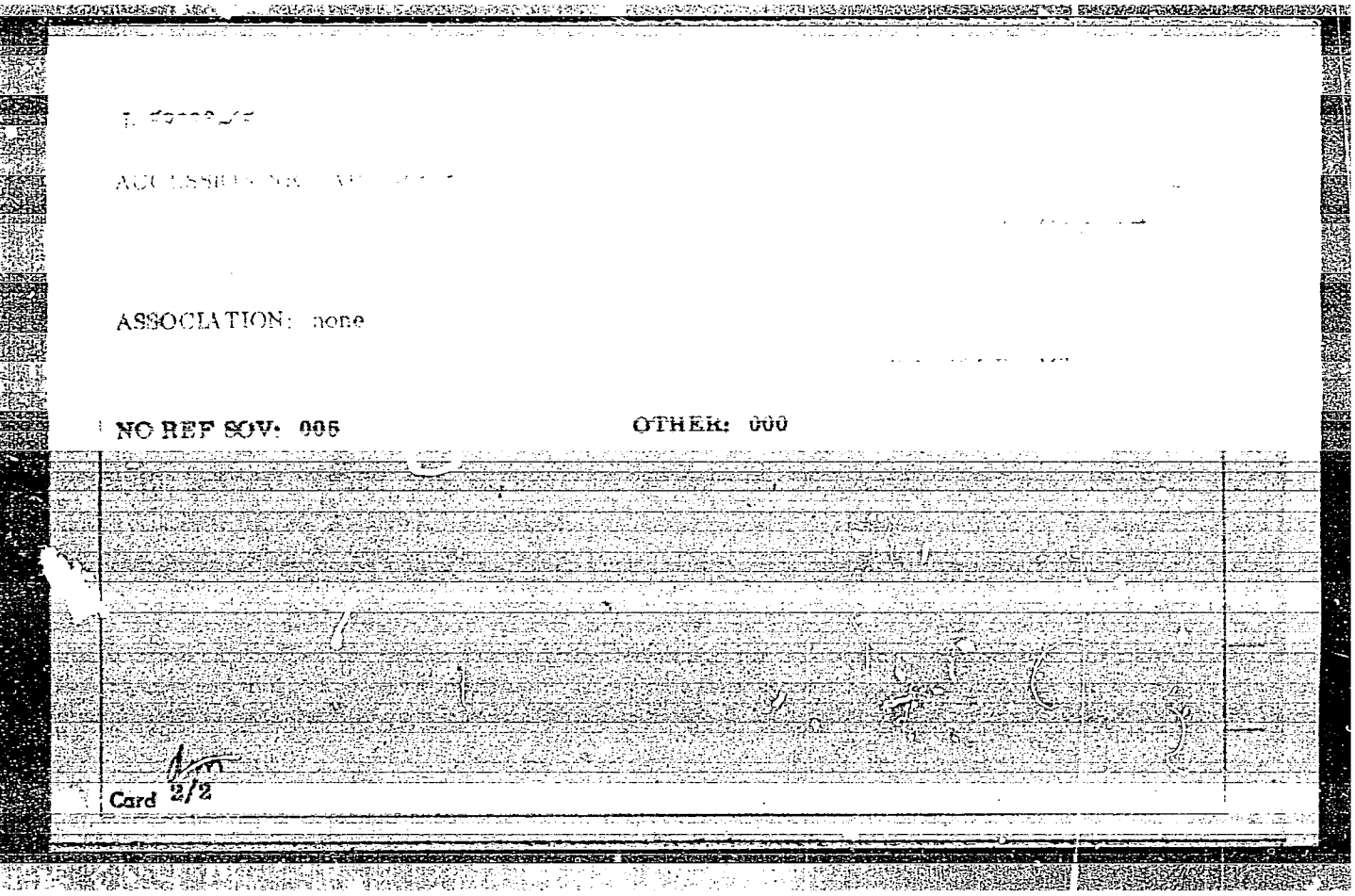
ACCESSION NR: AP5016878 UR/0374/65/000/003/0008/0014
678:539.4.019

AUTHOR: Trostyanskaya, Ye. B. (Moscow); Poymanov, A. M. (Moscow)

TITLE: Causes of the decreased strength of fiber-glass reinforced plastics based on phenol-formaldehyde resin

SOURCE: Mekhanika polimerov, no. 3, 1965, 8-14

ABSTRACT: A study of the kinetics of hardening of phenol-formaldehyde resin in the presence of glass and quartz fibers established that one of the chief causes of the decreased



ASSOCIATION: none

NO REF SOV: 005 OTHER: 000

Card 2/2

TROSTYANSKAYA, Ye.B.; FOYNAROV, A.M.; KASATKIN, Yu.N.

Method for analyzing the surface characteristics of glass fibers to be used for the manufacture of glass plastics. Plast.massy no.7: 52-55 '64. (MIRA 17:10)

LOSEV, Ivan Platonovich [deceased]; TROSTYANSKAYA, Yelena Borisovna; ROGAYLINA, A.A., red.

[Chemistry of synthetic polymers] Khimiia sinteticheskikh polimerov. 2. izd. Moskva, Izd-vo "Khimiia," 1964. 640 p. (MIRA 17:7)

EWP(e)/EWA(c)/EWT(m)/EPF(c)/EWP(i)/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4
RPL WW/RM
UR/0191/65/000/001/0026/0035

AUTHOR: Trostyanskaya, Ye. B. (Moscow); Peymanov, A. M. (Moscow); Kazanskiy, Yu. N. (Moscow)

TITLE: Study of the influence of processes taking place at the gales fiber-binder boundary on the strength of glass-reinforced plastics

SOURCE: Mekhanika polimerov, no. 1, 1965, 26-35

TOPIC TAGS: polymer physical chemistry, reinforced plastic, fiberglass, polymer, adhesion

ABSTRACT: A number of statements appear in the literature regarding various factors affecting the strength of glass-reinforced plastics (GRP). Some of these statements are [illegible] with each other. Generally, [illegible] processes taking

In many cases it was shown that the strength of GRP is a function of [illegible] to the fiber. An assumption had been advanced

of the fiber, binder

between finished fibers and binder is ascribed by some authors to a chemical reaction between finished fiber and binder; this, however, is contradicted by other investigators. Explaining the beneficial effect of fiber finishing by ascribing it to improved wetting of the fiber by the binder is contrary to the established fact that finishing can only impair wetting of the fiber. It had been shown that the strength of GRP depends substantially on the friction in this case, the decisive factors

[illegible] the fiber immediately adjacent

[illegible] cus types of fiber-surface treatment on the extent and rate

[illegible] number of resins were selected

of etching on the various fiber-binder

setting the leaching effect of the solvent vs time, reflect the hardening

amounts of material

effect on the rate and the ultimate degree

L 41809-65
ACCESSION NR: AP5011987

Polyester and silicone resins are particularly susceptible

in the binder region immediately adjacent to the fiber.

COMMENT: This work appears to aim at clarification of the causes underlying failure of GRP products. The materials tested are selected so as to represent a broad spectrum of GRP, perhaps with application to materials yet to be produced. Orig. art. has: 5 tables, 8 figures, 2 graphs.

ASSOCIATION: none

SUBMITTED: 12Oct64 ENCL: 00 SUB CODE: MT, GC

NO REF SOV: 008 OTHER: 007 ATD PRESS: 3212-F

Card 4/4